13. The device of claim 12, wherein the ride improving hydraulic circuit is further arranged to permit lowering of the loader arm assembly when in the ride improving mode, the second control valve shifting back to the first position when lowering the loader arm assembly when in the ride improving mode.

REMARKS

Receipt of the office action mailed October 2, 2002 is acknowledged. Claims 1-6 are pending in the application and have been rejected. New claims 7-13 are submitted herewith for consideration. In keeping with the foregoing amendment and the following argument, reconsideration of the rejected claims and allowance of the newly submitted claims is respectfully requested.

In response to the rejections under 35 U.S.C. § 112(2), the claims have been amended as necessary in order to overcome the issues identified by the Examiner. Accordingly, the claims are now in proper form.

The rejection of claim 1 as being obvious over Bauer in view of Drake and Marchi must be withdrawn.[1] Claim 1 as amended positively recites, in part, an accumulator in the hydraulic circuit, and a check valve connected between the first chamber and the selection valve means such that the check valve is normally closed to prevent fluid under pressure passing from the first chamber to the selection valve means, with the check valve being

[1] To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria.

responsive to hydraulic fluid pressure in the second chamber to open the check valve to permit fluid flow from the first chamber to the selection valve means when the second chamber is pressurized.

The Bauer reference does not suggest a "smooth ride" facility of the type possible with the claimed arrangement. As pointed out by the Examiner's extensive list, Bauer fails to disclose much of claim 1. Bauer, at Fig. 20, merely discloses a pair of check valves for the auxiliary circuit which allow fluid to pass, for example, from line 211 via either of the checks 250/251, to line 246 or 247, respectively, or vice versa via the valves 248 or 249. The applicants are not claiming any novelty in such a check valve per se, but in how it is loaded in a ride impact circuit to provide hose burst protection. The check valve indicated at 238 is not a by-pass and, moreover, the valve 238 is not connected between two lines which are respectively pressurized to cause lift and lower of the lifting arm. Instead, the valves are merely disposed between a pressurized line and a drain line.

Marchi does not teach or even suggest an accumulator, the claimed control valves or the claimed check valve. Drake fails to disclose the claimed control valves and the claimed check valve. More specifically, Marchi merely shows a counter balanced check valve at item 42 (see figure 3) which is normally closed to provide fluid under pressure passing from the "lift" side of the piston back to the valve 34, and which is opened (see figure 4) when pressurized fluid is applied to the "lower" side of piston to allow fluid from the "lift" side of the piston to pass back through the counter balance valve 42 to the control valve 34. The flow arrangements of the claimed first and second control valves as a function of their positions plainly are not disclosed, and the claimed check valve that "permits fluid flow from the first chamber to the selection valve means when the second chamber is pressurized" is not disclosed.

Instead, on the Marchi reference the check valve 40 plainly stops flow from the chamber 26 toward the valve 34, and thus the valves 42 and 52 must be provided to achieve this function. If elements/limitations are missing from the combination, there cannot be a prima facie case of obviousness and the rejection must be withdrawn. Moreover, elimination of an element and retention of its function is evidence of nonobviousness. *In re Edge*, 149 USPQ 556 (CCPA 1966), MPEP 2144.04-II-B.

Moreover, no suggestion has been supplied regarding how one should go about inserting an accumulator into Marchi without disrupting the expressly claimed first and second "fluid passage means" of Marchi, or how one would go about altering/eliminating the valves 42, 40 and 52 without using Applicant's disclosure as a template. There would be no suggestion to discard these express teachings, nor has any reasonable suggestion been supplied. Instead, the Examiner appears to substitute the notion that the references can be modified or combined for "the purpose of preventing a drop of the arm when a fluid passage fails." Indeed, on Marchi the counter balance valve 42 provides protection in the event of a hose burst because in that event, as illustrated in figure 4a, the pressure in line 36 will drop and accordingly the counter balanced valve 42 will close again trapping fluid between the counter balance valve 42 and the "lift" side of the piston. Thus, a load will not be dropped. This is all well and good, but nevertheless the Examiner's statement does nothing to meet the elements/limitations of the claim.

Marchi also includes what is described as a "float" system and the configuration of the system in this mode is indicated in figure 5. In the "floating mode" of Marchi, the first and second chambers are maintained in fluid communication with each other. See col. 6, lines 54-58. Here, the float valve 52 is operated, and the control valve 34 needs to be operated, so that fluid is trapped in the system and can pass via the control valve 34 from

one side of the piston to the other via the lines 36 and 38. This will not act as a true ride improvement system as in the applicant's invention, and simply fails to meet the elements/limitations of the claim, even if arm movements may be damped by moving fluid to some extent.

The Drake reference adds nothing. Although Drake teaches a ride improvement system, Drake simply uses a hydraulic accumulator which is connected via a first control valve 74 to the line feeding pressurized fluid to the "lift" side of the actuators and there is a second control valve 76 which permits fluid to pass from lines connecting the "lower" sides of the actuators, to tank. There is however, in Drake, no first and second control valves as claimed, no check valve as claimed, nor is there any facility for providing any protection in the event of a hose burst. Thus, there cannot be a prima facie case of obviousness.

In accordance with the teachings of the disclosed invention, the applicants have solved one or more problems by placing a one way counter balanced check valve between the lines feeding the "lift" and "lower" sides of the actuator, so that fluid can flow from the selector valve to the first chamber 25 of the lifting actuator, and from the "lower" side of the actuator, as well as to the "lower side of the actuator and from the "lift" side of the actuator, provided there is no hose burst. The cited combination offers nothing regarding how to incorporate hose burst protection into a ride improvement system, which is offered by claim 1.

Further, it is the applicant's contention that, notwithstanding all three documents on which the examiner is relying, are in the same state of the art, the three systems which are described are very different to one another and it cannot be obvious to see how to adapt any of the systems incorporating features from any other of the systems because all three systems are concerned with very different functionalities. Thus, the Examiner's foregoing

ement notwithstanding, there simply is nothing in these references that would suggest they should be or could be combined in any meaningful manner.

Based on the foregoing, claim 1 is in allowable form.

Claims 2-6 depend from claim 1, and thus claims 2-6 are also in allowable form.

New claims 7-13 are submitted herewith for consideration. New claims 7-13 are not taught or even suggested by any of the cited references, either alone or in combination. Accordingly, the new claims are in allowable form.

Attached hereto is a "VERSION WITH MARKINGS TO SHOW CHANGES MADE".

In view of the foregoing the above-identified application is in condition for allowance. In the event there is any remaining issue that the Examiner believes can be resolved by a telephone conference, the Examiner is respectfully invited to contact the undersigned attorney at (312) 474-6612.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Attorney Docket No.: 06007/37458

Ser. No. 09/866,311

IN THE CLAIMS:

Please amend the claims as follows:

1.(Amended)An hydraulic system for a wheeled loader having a loader arm assembly which carries a working implement and which is connected to the body and which is movable between raised and lowered positions by means of a hydraulic actuator device [ram means] and in which a hydraulic accumulator is connected to the hydraulic actuator device [ram means] wherein the loader arm assembly is connected at, or adjacent to, the rear end thereof to the body at, or adjacent to, the rear end thereof so that the loader arm assembly extends forwardly whereby, in a lowered position of the loader arm assembly, the working implement is disposed in front of the body and wherein the actuator device includes a cylinder receiving a piston, the cylinder having a first chamber at one side of the piston and a second chamber at a second side of the piston, each chamber of the cylinder being [hydraulic ram means is] connected to a selection valve means adapted to feed fluid under pressure to the first [one] chamber of the cylinder [ram means] and to receive fluid at a lower pressure from the second [other] chamber of the cylinder [ram means] in order to raise the loader arm assembly or to feed fluid under pressure to the second [said other] chamber of the cylinder [ram means] and receive fluid at a lower pressure from the first [said one] chamber of the cylinder [ram means] to lower the loader arm assembly, first and second control valves, the first control valve [each of which is] movable between a first position in which passage of hydraulic fluid therethrough is prevented in one direction [or both directions respectively to] and a second position in which passage of hydraulic fluid therethrough is permitted, the second control valve movable between a first position in

which passage of hydraulic fluid therethrough is prevented in both directions and a second position in which passage of hydraulic fluid therethrough is permitted, the [said] first control valve [means] being connected between the [said] first chamber and the [said] hydraulic accumulator and the [said] second control valve [means] being connected between the [said] second chamber and a low pressure region, and there being a check valve connected between the first chamber and the selection valve means such that the check valve is normally closed to prevent fluid under pressure passing from the [said] first chamber to the selection valve means, the check valve being responsive to [and having hydraulic fluid responsive means to open said check valve and there being means to connect said] hydraulic fluid pressure [means to said] in the second chamber [so as] to open the check valve to permit fluid flow from the first chamber to the selection valve means when the second chamber is pressurized.

3.(Amended) A system according to claim 1 wherein the hydraulic system includes a ride improvement means and wherein the control valves are electrically operated solenoid valves to which current is supplied by a manually operable switch means to cause operation of said ride improvement means when said control valves are positioned [to permit passage of hydraulic fluid] in their respective second positions.

4.(Amended) A system according to claim 2 wherein the selection valve is provided with a switch means to sense the position of the selection valve to close said second control valve when the [boom] arm is lowered and said control valves are open.

6.(Amended) A system according to claim 1 wherein at least one of said accumulator, [solenoid] control valves, [and] check [valves] valve and connecting pipes are made of metal.

Please add the following claims:

--7. A hydraulic system having a ride improvement mode and for use on a wheeled loader having a forwardly extending loader arm assembly mounted adjacent a rear end of the wheeled loader, the hydraulic system comprising:

a hydraulic cylinder operatively connected to the loader arm for raising and lowering the loader arm, the hydraulic cylinder having a first chamber and a second chamber disposed on opposite sides of a piston;

a selection valve operatively connected to the hydraulic cylinder via a first line and a second line, the selection valve arranged to feed pressurized hydraulic fluid to the first chamber via the first line and to receive hydraulic fluid at a lower pressure from the second chamber via the second line in order to raise the loader arm assembly, the selection valve further arranged to feed pressurized hydraulic fluid to the second chamber via the second line and to receive hydraulic fluid at a lower pressure from the first chamber via the first line in order to lower the loader arm assembly;

an accumulator connected to the first feed line via a first control valve, the first control valve movable between a first position in which hydraulic fluid flow is permitted only from the accumulator to the first feed line and a second position in which hydraulic fluid flow is permitted between the accumulator and the first feed line in both directions;

a low pressure area connected to the second feed line by a second control valve, the second control valve movable between a first position in which passage of hydraulic fluid between the second feed line and the low pressure area is prevented and a second position

in which hydraulic fluid flow between the second feed line and the low pressure area is permitted in both directions; and

a check valve operatively connected to both the first and second feed lines, and responsive to pressure in the second feed line to open the first feed line between the hydraulic cylinder and the selection valve;

the first and second control valves when both shifted to the second positions arranged to provide a hydraulic suspension to the loader arm assembly.

8. The device of claim 7, wherein the check valve is arranged to permit raising of the loader arm assembly when the first and second control valves are both shifted to the second positions.

9. The device of claim 7, wherein the check valve is arranged to permit lowering of the loader arm assembly when the first and second control valves are both shifted to the second positions.

10. A hydraulic system having a ride improving hydraulic circuit and for use on a wheeled loader having a forwardly extending loader arm assembly mounted adjacent a rear end of the wheeled loader, the hydraulic system comprising:

a ride improving hydraulic circuit, the hydraulic circuit including:

a hydraulic cylinder operatively connected to the loader arm for raising and lowering the loader arm, the hydraulic cylinder having a first chamber and a second chamber disposed on opposite sides of a piston;

a selection valve operatively connected to the hydraulic cylinder via a first line and a second line, the selection valve arranged to feed pressurized hydraulic fluid to the first chamber via the first line and to receive hydraulic fluid at a lower pressure from the second chamber via the second line in order to raise the loader arm assembly, the selection valve further arranged to feed pressurized hydraulic fluid to the second chamber via the second line and to receive hydraulic fluid at a lower pressure from the first chamber via the first line in order to lower the loader arm assembly;

an accumulator connected to the first feed line via a first control valve, the first control valve movable between a first position in which hydraulic fluid flow is permitted from the accumulator to the first feed line and a second position in which hydraulic fluid flow is permitted between the accumulator and the first feed line in both directions;

a low pressure area connected to the second feed line by a second control valve, the second control valve movable between a first position in which passage of hydraulic fluid between the second feed line and the low pressure area is prevented and a second position in which hydraulic fluid flow between the second feed line and the low pressure area is permitted in both directions; and

a hose burst check valve disposed between the first chamber and the selection valve, the check valve normally closed to prevent fluid under pressure passing from the first chamber to the selection valve, the check valve responsive to hydraulic fluid pressure in the second chamber to open the check valve to permit fluid flow from the first chamber to the selection valve when the second chamber is pressurized.

11. The device of claim 10, wherein the ride improving hydraulic circuit is shiftable to a ride improving mode, the ride improving mode activated by shifting the first and second control valves to the second position, the first and second control valves when in the second position arranged to route hydraulic fluid to the accumulator and the low pressure area, respectively.

12. The device of claim 11, wherein the ride improving hydraulic circuit is further arranged to permit raising of the loader arm assembly when in the ride improving mode.

13. The device of claim 12, wherein the ride improving hydraulic circuit is further arranged to permit lowering of the loader arm assembly when in the ride improving mode, the second control valve shifting back to the first position when lowering the loader arm assembly when in the ride improving mode.--